

30-015-31145

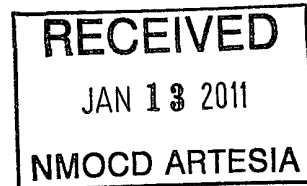
MARBOB ENERGY

Watkins
Eddy County, NM
Nervous Horz Com #3H
32K0710551
VH - Job #320710551

Survey: Actual

Standard Survey Report

18 August, 2010



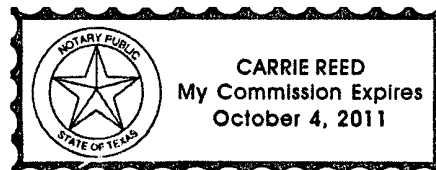
This survey is correct to the best of my knowledge and is supported by actual field data.

Lehart

Notorized this date 20th of August, 2010.

Carrie Reed

Notary Signature
County of Midland
State of Texas



MR

Scientific Drilling International, Inc.
Survey Report

Company:	MARBOB ENERGY	Local Co-ordinate Reference:	Well Nervous Horz Com #3H
Project:	Watkins	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Nervous Horz Com #3H	North Reference:	Grid
Wellbore:	VH - Job #320710551	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320710551	Database:	EDM-Regulatory

Project	Watkins		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Eddy County, NM				
Site Position:		Northing:	622,495.30 usft	Latitude:	32° 42' 37.034 N
From:	Map	Easting:	657,801.10 usft	Longitude:	103° 49' 13.071 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.28 °

Well	Nervous Horz Com #3H					
Well Position	+N/-S	0.0 usft	Northing:	622,495.30 usft	Latitude:	32° 42' 37.034 N
	+E/-W	0.0 usft	Easting:	657,801.10 usft	Longitude:	103° 49' 13.071 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore	VH - Job #320710551				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/18/2010	7.83	60.64	49,023

Design	VH - Job #320710551				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	290.62	

Survey Program	Date	8/18/2010			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,475.0	Actual (VH - Job #320710551)	Keeper	Keeper Gyro	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.17	158.18	100.0	-0.1	0.1	-0.1	0.17	0.17	0.00	
200.0	0.28	151.48	200.0	-0.5	0.2	-0.4	0.11	0.11	-6.70	
300.0	0.16	138.47	300.0	-0.8	0.4	-0.7	0.13	-0.12	-13.01	
400.0	0.27	72.13	400.0	-0.8	0.8	-1.0	0.25	0.11	-66.34	
500.0	0.08	283.80	500.0	-0.8	0.9	-1.1	0.34	-0.19	-148.33	
600.0	0.39	294.94	600.0	-0.6	0.5	-0.7	0.31	0.31	11.14	
700.0	0.74	291.92	700.0	-0.2	-0.4	0.3	0.35	0.35	-3.02	
800.0	0.59	290.94	800.0	0.2	-1.5	1.4	0.15	-0.15	-0.98	
900.0	0.80	287.22	900.0	0.6	-2.6	2.6	0.21	0.21	-3.72	

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Nervous Horz Com #3H	North Reference:	Grid
Wellbore:	VH - Job #320710551	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320710551	Database:	EDM-Regulatory

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	1.03	282.15	1,000.0	1.0	-4.1	4.2	0.24	0.23	-5.07
1,100.0	0.81	277.46	1,100.0	1.3	-5.7	5.8	0.23	-0.22	-4.69
1,200.0	1.10	287.12	1,199.9	1.7	-7.3	7.5	0.33	0.29	9.66
1,300.0	1.11	284.80	1,299.9	2.2	-9.2	9.4	0.05	0.01	-2.32
1,400.0	1.02	284.44	1,399.9	2.7	-11.0	11.2	0.09	-0.09	-0.36
1,500.0	1.22	293.21	1,499.9	3.3	-12.8	13.2	0.26	0.20	8.77
1,600.0	0.88	281.04	1,599.9	3.9	-14.6	15.0	0.40	-0.34	-12.17
1,700.0	0.81	281.02	1,699.9	4.1	-16.0	16.5	0.07	-0.07	-0.02
1,800.0	0.88	289.48	1,799.8	4.5	-17.4	17.9	0.14	0.07	8.46
1,900.0	0.84	302.35	1,899.8	5.2	-18.8	19.4	0.20	-0.04	12.87
2,000.0	0.85	318.94	1,999.8	6.1	-19.9	20.8	0.24	0.01	16.59
2,100.0	0.88	323.16	2,099.8	7.3	-20.8	22.1	0.07	0.03	4.22
2,200.0	1.16	347.69	2,199.8	8.9	-21.5	23.3	0.51	0.28	24.53
2,300.0	1.19	350.01	2,299.8	10.9	-21.9	24.4	0.06	0.03	2.32
2,400.0	1.43	344.36	2,399.7	13.2	-22.4	25.6	0.27	0.24	-5.65
2,500.0	1.32	344.44	2,499.7	15.5	-23.1	27.0	0.11	-0.11	0.08
2,600.0	1.38	342.19	2,599.7	17.7	-23.7	28.5	0.08	0.06	-2.25
2,700.0	1.46	326.13	2,699.7	19.9	-24.8	30.2	0.40	0.08	-16.06
2,800.0	1.40	316.40	2,799.6	21.9	-26.4	32.4	0.25	-0.06	-9.73
2,900.0	1.70	304.23	2,899.6	23.6	-28.4	34.9	0.44	0.30	-12.17
3,000.0	1.98	303.04	2,999.5	25.4	-31.1	38.1	0.28	0.28	-1.19
3,100.0	1.96	311.92	3,099.5	27.4	-33.8	41.3	0.31	-0.02	8.88
3,200.0	0.78	319.41	3,199.5	29.1	-35.6	43.5	1.19	-1.18	7.49
3,300.0	0.43	356.28	3,299.4	30.0	-36.0	44.3	0.51	-0.35	36.87
3,400.0	0.48	6.92	3,399.4	30.8	-36.0	44.5	0.10	0.05	10.64
3,500.0	0.54	339.80	3,499.4	31.6	-36.1	44.9	0.25	0.06	-27.12
3,600.0	0.61	338.91	3,599.4	32.6	-36.5	45.6	0.07	0.07	-0.89
3,700.0	0.57	346.69	3,699.4	33.6	-36.8	46.2	0.09	-0.04	7.78
3,800.0	0.51	324.88	3,799.4	34.4	-37.1	46.9	0.21	-0.06	-21.81
3,900.0	0.52	318.54	3,899.4	35.1	-37.7	47.6	0.06	0.01	-6.34
4,000.0	0.51	294.13	3,999.4	35.6	-38.4	48.5	0.22	-0.01	-24.41
4,100.0	0.41	296.89	4,099.4	36.0	-39.1	49.3	0.10	-0.10	2.76
4,200.0	0.40	274.75	4,199.4	36.2	-39.8	50.0	0.16	-0.01	-22.14
4,300.0	0.54	268.19	4,299.4	36.2	-40.6	50.8	0.15	0.14	-6.56
4,400.0	0.57	265.66	4,399.4	36.1	-41.6	51.6	0.04	0.03	-2.53
4,500.0	0.64	270.74	4,499.4	36.1	-42.6	52.6	0.09	0.07	5.08
4,600.0	0.51	281.52	4,599.4	36.2	-43.6	53.6	0.17	-0.13	10.78
4,700.0	0.28	263.63	4,699.4	36.3	-44.3	54.2	0.26	-0.23	-17.89
4,800.0	0.35	222.52	4,799.4	36.0	-44.8	54.6	0.23	0.07	-41.11
4,900.0	0.25	244.14	4,899.4	35.7	-45.2	54.8	0.15	-0.10	21.62
5,000.0	0.40	250.46	4,999.4	35.5	-45.7	55.3	0.15	0.15	6.32
5,100.0	0.52	259.51	5,099.4	35.3	-46.5	55.9	0.14	0.12	9.05
5,200.0	0.67	270.27	5,199.4	35.2	-47.5	56.8	0.19	0.15	10.76
5,300.0	1.01	276.93	5,299.4	35.3	-49.0	58.2	0.35	0.34	6.66

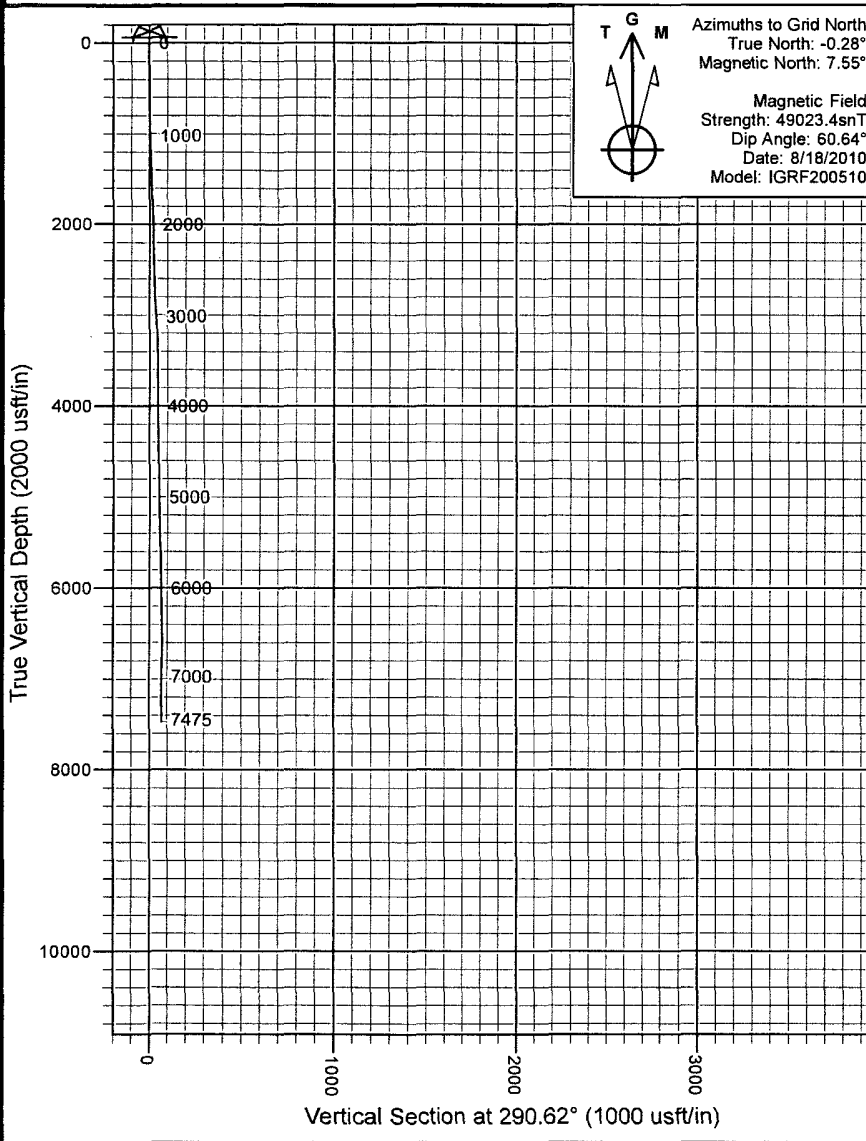
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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Nervous Horz Com #3H	North Reference:	Grid
Wellbore:	VH - Job #320710551	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320710551	Database:	EDM-Regulatory

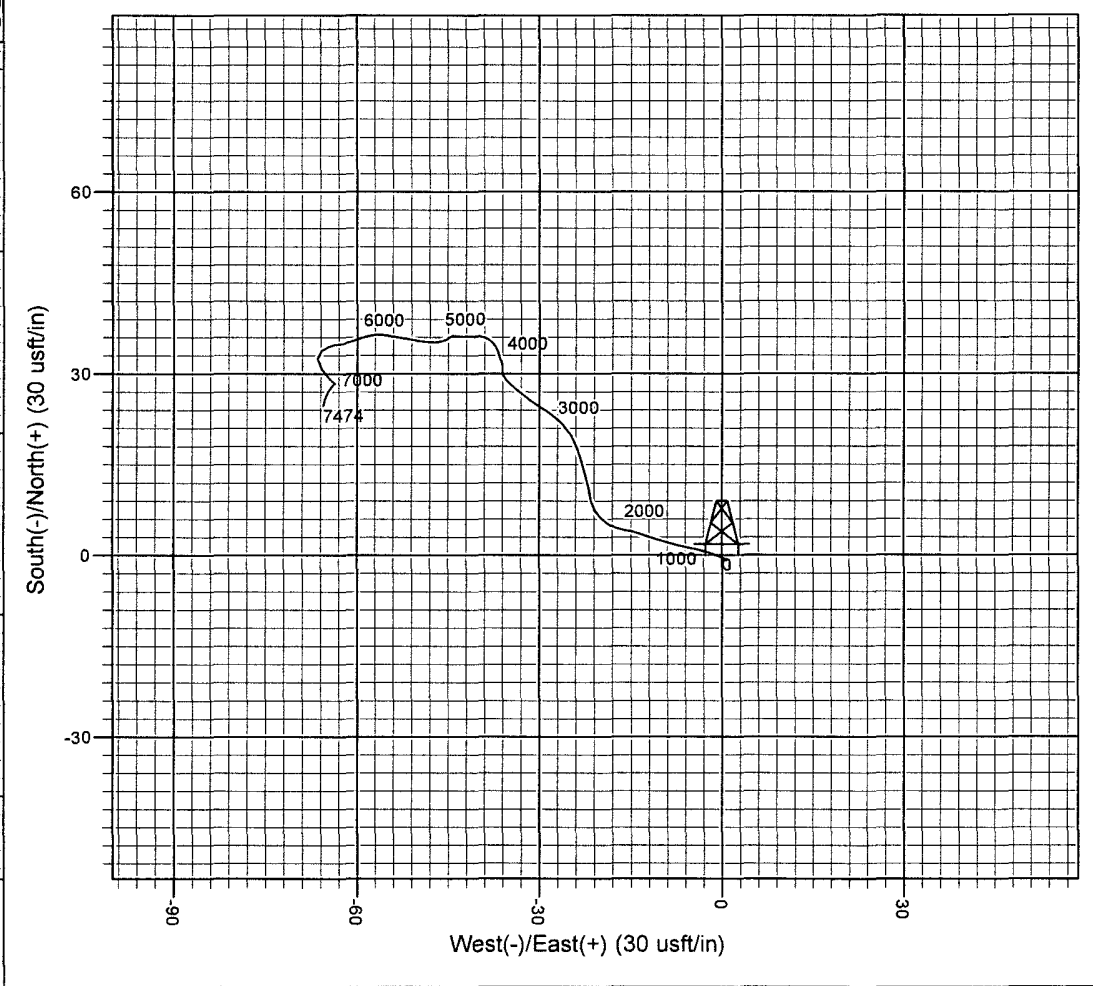
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.0	1.02	281.18	5,399.4	35.6	-50.7	60.0	0.08	0.01	4.25	
5,500.0	0.95	279.12	5,499.3	35.9	-52.4	61.7	0.08	-0.07	-2.06	
5,600.0	1.01	280.90	5,599.3	36.2	-54.1	63.4	0.07	0.06	1.78	
5,700.0	0.91	277.09	5,699.3	36.5	-55.7	65.0	0.12	-0.10	-3.81	
5,800.0	0.67	259.35	5,799.3	36.4	-57.1	66.3	0.34	-0.24	-17.74	
5,900.0	0.69	256.81	5,899.3	36.2	-58.3	67.3	0.04	0.02	-2.54	
6,000.0	0.71	247.04	5,999.3	35.8	-59.4	68.2	0.12	0.02	-9.77	
6,100.0	0.86	256.73	6,099.3	35.4	-60.7	69.3	0.20	0.15	9.69	
6,200.0	0.92	253.73	6,199.3	35.0	-62.2	70.6	0.08	0.06	-3.00	
6,300.0	0.23	279.71	6,299.3	34.8	-63.2	71.4	0.72	-0.69	25.98	
6,400.0	0.36	259.70	6,399.3	34.8	-63.7	71.9	0.16	0.13	-20.01	
6,500.0	0.77	244.84	6,499.3	34.5	-64.6	72.6	0.43	0.41	-14.86	
6,600.0	0.80	244.24	6,599.2	33.9	-65.8	73.5	0.03	0.03	-0.60	
6,700.0	1.19	181.33	6,699.2	32.5	-66.5	73.7	1.09	0.39	-62.91	
6,800.0	1.14	138.20	6,799.2	30.7	-65.9	72.5	0.86	-0.05	-43.13	
6,900.0	1.23	141.47	6,899.2	29.2	-64.5	70.7	0.11	0.09	3.27	
7,000.0	0.16	90.80	6,999.2	28.3	-63.7	69.6	1.14	-1.07	-50.67	
7,100.0	0.11	352.08	7,099.2	28.4	-63.6	69.5	0.21	-0.05	-98.72	
7,200.0	0.60	219.84	7,199.2	28.1	-63.9	69.7	0.68	0.49	-132.24	
7,300.0	0.80	216.04	7,299.2	27.1	-64.7	70.1	0.21	0.20	-3.80	
7,400.0	0.91	196.44	7,399.2	25.8	-65.3	70.2	0.31	0.11	-19.60	
7,475.0	0.87	190.37	7,474.2	24.7	-65.6	70.1	0.14	-0.05	-8.09	



Project: Watkins
 Eddy County, NM
 Well: Nervous Horz Com #3H
 Wellbore: VH - Job #320710551
 Design: VH - Job #320710551
 Site:



WELL DETAILS: Nervous Horz Com #3H						Slot
WELL @ 0.0usft (Original Well Elev)						
Ground Level: 0.0						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	622495.30	657801.10	32° 42' 37.034 N	103° 49' 13.071 W	



PROJECT DETAILS: Watkins
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level

SITE DETAILS: Eddy County, NM
 Site Centre Latitude: 32° 42' 37.034 N
 Longitude: 103° 49' 13.071 W
 Positional Uncertainty: 0.0
 Convergence: 0.28
 Local North: Grid